

BASIS FOR THE AMENDMENT

The specification has been amended to correct an obvious typographical error.

REMARKS

Entry of this amendment and favorable reconsideration of this application is requested.

Claims 1-7 are in the case. They stand rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 218881 in view of JP 3-229773. This rejection is again traversed.

The invention relates to a coating composition to form a coating layer or film of a hydrophilic polyurethane resin having a moisture permeability and being non-porous, which comprises an isocyanate group-containing prepolymer obtained by reacting diphenylmethane diisocyanate with the following mixture of polyoxyalkylene polyols:

a mixture of polyoxyalkylene polyols which contains at least 60 wt%, based on the mixture of polyoxyalkylene polyols, of a polyoxyethylene polyol, said polyoxyethylene polyol having at least three hydroxyl groups and having an oxyethylene group-content of at least 10 wt%, based on the polyoxyethylene polyol; wherein said mixture of polyoxyalkylene polyols satisfies $3.0 < n < 3.5$, where n is the average number of hydroxyl groups, and has an average oxyethylene group-content of from 60 to 90 wt%, based on the mixture of polyoxyalkylene polyols.

The claimed coating composition provides a coating layer or film having excellent mechanical properties, such as tensile strength, elongation and abrasion resistance by maintaining an adequate moisture permeability having a low degree of swelling upon absorption of water and is excellent in washing durability.

A claimed feature significant in accomplishing the coating composition to have such properties is that both (1) the average number n of hydroxyl groups in the polyoxyalkylene polyol satisfies $3.0 < n < 3.5$, and also that (2) diphenylmethane diisocyanate is used as the diisocyanate. This combination of features admittedly is not so specifically disclosed by the European patent and results in the coating composition having unobviously superior characteristics and properties, as note Table 1 at page 21 of the specification.

As so acknowledged by the Examiner, the average functionality range in the European patent '881 is broader than that of the claimed invention. However, he urges that it assertedly would be obvious to operate at the upper end of the functionality range disclosed by the European patent, expecting an increased crosslink density resulting from using an increased functionality blend to reduce swelling of the films.

Furthermore, diphenylmethane diisocyanate is not specifically exemplified in European patent '881. The Examiner thus additionally relies on the Japanese patent to assertedly make obvious its use in the system of the European patent, this Japanese patent being referred to and discussed at page 5, first full paragraph, of the specification.

It is again submitted that the showing of unobviously superior results in the specification rebuts any possible *prima facie* case of obviousness. Note the results set forth in Table 1 at page 21 of the specification, reproduced below.

Table 1

Example	Average number of hydroxyl groups	Average hydroxyl value	Moisture permeability (g/m ² ·24h)	Elongation (%)	Tensile strength (kg/cm ²)	M ₁₀₀ (kg/cm ²)	Degree of swelling upon absorption of water (%)
1	3.3	47.5	14,000	130	110	90	12
2	3.1	47.9	12,000	140	118	78	9
3	3.0	48.1	16,000	160	95	65	16
4	2.6	51.3	21,000	240	48	19	32
5	2.1	55.3	17,000	350	90	24	28
6	3.0	48.1	19,000	200	62	23	26

The Examiner is correct in stating that Example 3 is a Comparative Example and the specification thus has been amended accordingly. With regard to Example 3, the Examiner at page 4 of this action states:

Though Example 3 lacks the minor diol component of the primary reference, Example 3 and the combined teachings of the prior art references are considered to be sufficiently similar in terms of diisocyanate species, average hydroxyl functionality, and oxyethylene content that the results set forth within Example 3 can reasonably be expected to closely approximate the results one would obtain from practicing the prior art, as set forth by the examiner. Given this position, the Examiner takes the additional position that the properties set forth for Example 3 are sufficiently close to the properties of Examples 1 and 2 that Example 3 fails to be demonstrative of unexpected results sufficient to overcome the prior art rejection, without further elaboration.

In support of such “further elaboration”, the following is submitted. Thus, if in the polyoxyalkylene polyol the average number n of hydroxyl groups is smaller than the claimed range, no adequate mechanical properties can be obtained and the swelling degree upon absorption of water tends to be high, no adequate washing durability thus being present. If, on the other hand, the average number n of hydroxyl groups is larger than the claimed range, the mechanical strength may be higher, but flexibility or drape deteriorates substantially, a coating composition having the excellent performance of the claimed composition thus not being attainable.

Further, even if the average number n of hydroxyl group satisfies the claimed range, but diphenylmethane diisocyanate is not used as the diisocyanate, tolylene diisocyanate for example being used, as in the examples of the European patent ‘881, no adequate mechanical properties can be obtained, the light resistance or NO_x yellowing resistance tending to be poor.

Consequently, as so acknowledged by the Examiner, the results set forth in Example 3 can reasonably be expected to closely approximate the results one would obtain from

practicing the prior art, Example 3 being representative of the prior art. However, it is his position that the results of Examples 1 and 2, according to the present invention, fail to establish unobvious results thereover. It is submitted, contrary thereto, that unobvious result-effectiveness has in fact been established for the specific combination as claimed, for reasons as pointed out above.

The superior degree of swelling upon absorption of water obtained by the claimed invention is of such a magnitude which clearly would not be presumed by the artisan to result and be due to the claimed average number of hydroxyl groups as compared to when an average number of hydroxyl groups as in the prior art are present. Also, the results with regard to moisture permeability, elongation and tensile strength manifestly are unobvious superior result-effective variables which could not have been foreseen. They are indicia of unobviousness. It is only by the specific combination of diphenylmethane diisocyanate and the claimed mixture of polyoxyalkylene polyols that unobviously superior results obtained, as so shown. Such result-effectiveness rebuts any possible *prima facie* case of obviousness conceivably made out by the combination of references.

Accordingly, withdrawal of the rejection of the claims under 35 U.S.C. § 103 is requested.

It is submitted that this application is now in condition for allowance and which is solicited.

Respectfully submitted,

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Marked-Up Copy
Serial No: 09/874,060
Amendment Filed Herewith

IN THE SPECIFICATION

Page 15, line 26 to page 16, line 4, please amend as in the attached marked-up copy to read as follows:

Now, the present invention will be described in further detail with reference to Examples (Examples 1 and 2 [to 3]), and Comparative Examples (Examples [4] 3 to 6). However, it should be understood that the present invention is by no means restricted by such specific Examples. In these Examples, "parts" means "parts by weight".